

## Product Information

**MR1K-008..025GM / K**

# Flow Switch MR1K

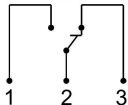
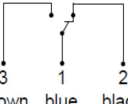


- High switching power
- Compact design

## Characteristics

Mechanical flow switch, for fluid media, with spring-supported piston and magnetic triggering of a reed switch. Robust construction in brass or stainless steel.

## Technical data

|                                                |                                                                                                                                                                                                                                                                                                                                                                                               |                                |  |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--|
| <b>Switch</b>                                  | reed switch                                                                                                                                                                                                                                                                                                                                                                                   |                                |  |
| <b>Nominal width</b>                           | DN 8 ... DN 25                                                                                                                                                                                                                                                                                                                                                                                |                                |  |
| <b>Process connection</b>                      | female thread G 1/4 ... G 1<br>(further process connections available on request)                                                                                                                                                                                                                                                                                                             |                                |  |
| <b>Switching range</b>                         | 0.4 ... 60 l/min                                                                                                                                                                                                                                                                                                                                                                              | for details see table "Ranges" |  |
| <b>Pressure loss</b><br><b>Q<sub>max</sub></b> | 0.4 ... 1.4 bar at Q <sub>max</sub> .<br>up to 80 l/min                                                                                                                                                                                                                                                                                                                                       |                                |  |
| <b>Tolerance</b>                               | ±5 % of full scale value                                                                                                                                                                                                                                                                                                                                                                      |                                |  |
| <b>Pressure resistance</b>                     | PN 200 optionally PN 500                                                                                                                                                                                                                                                                                                                                                                      |                                |  |
| <b>Media temperature</b>                       | -20 ... +120 °C                                                                                                                                                                                                                                                                                                                                                                               |                                |  |
| <b>Ambient temperature</b>                     | -20 ... +70 °C                                                                                                                                                                                                                                                                                                                                                                                |                                |  |
| <b>Media</b>                                   | water (oils and aggressive media available on request)                                                                                                                                                                                                                                                                                                                                        |                                |  |
| <b>Wiring</b>                                  | <div>changeover<br/>no. 0.213</div> <div></div> <div>optionally changeover<br/>no. 0.282</div> <div></div> <div>brown    blue    black</div> <div>optionally red or red / green diode in the<br/>DIN 43650-A plug</div> |                                |  |
| <b>Switching voltage</b>                       | Max. 175 V DC / 120 V AC                                                                                                                                                                                                                                                                                                                                                                      |                                |  |
| <b>Switching current</b>                       | Max. 0.25 A DC / 0.18 A AC                                                                                                                                                                                                                                                                                                                                                                    |                                |  |
| <b>Switching capacity</b>                      | Max. 5 W / VA                                                                                                                                                                                                                                                                                                                                                                                 |                                |  |
| <b>Protection class</b>                        | 2 - safety insulation                                                                                                                                                                                                                                                                                                                                                                         |                                |  |
| <b>Ingress protection</b>                      | IP 65                                                                                                                                                                                                                                                                                                                                                                                         |                                |  |
| <b>Electrical connection</b>                   | plug DIN 43650-A / ISO 4400, optionally<br>round plug connector M12x1, 4-pole,<br>optionally cable 2.5 m                                                                                                                                                                                                                                                                                      |                                |  |

|                                     |                                                                                                                                                              |                                                                                                     |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>Materials medium-contact</b>     | <i>Brass construction:</i><br>CW614N nickelled,<br>CW614N, 1.4310,<br>hard ferrite, NBR                                                                      | <i>Stainless steel construction:</i><br>1.4571, 1.4404,<br>1.4310, hard ferrite<br>PTFE-coated, FKM |
| <b>Non-medium-contact materials</b> | PA, CW614N, NBR                                                                                                                                              |                                                                                                     |
| <b>Weight</b>                       | see table "Dimensions and weights"                                                                                                                           |                                                                                                     |
| <b>Installation location</b>        | Standard: horizontal inwards flow from the left; other installation positions are possible; the installation position affects the switching point and range. |                                                                                                     |

## Ranges

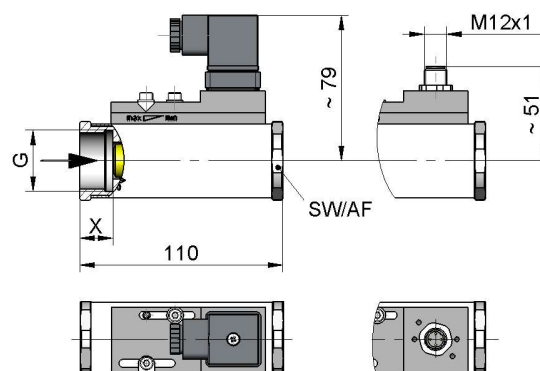
For switching ranges, the details in the table correspond to horizontal inwards flow and decreasing flow rate; for display ranges they correspond to horizontal inwards flow and increasing flow rate.

| Switching range<br>l/min H <sub>2</sub> O | Display range<br>l/min H <sub>2</sub> O |          | Q <sub>max</sub><br>recommended | Pressure loss<br>bar at Q <sub>max</sub> H <sub>2</sub> O |
|-------------------------------------------|-----------------------------------------|----------|---------------------------------|-----------------------------------------------------------|
|                                           | O / O1                                  | J        |                                 |                                                           |
| 0.4 - 4                                   | 0.5 - 5                                 | 0.4 - 4  | 10                              | 0.6                                                       |
| 1.0 - 10                                  | 1.0 - 12                                | 1.0 - 10 | 20                              |                                                           |
| 2.0 - 20                                  | 2.0 - 23                                | 2.0 - 20 | 30                              | 0.4                                                       |
| 3.0 - 30                                  | 3.0 - 34                                | 3.0 - 30 | 40                              |                                                           |
| 4.0 - 40                                  | 4.0 - 45                                | 4.0 - 40 | 60                              | 0.8                                                       |
| 6.0 - 60                                  | 6.0 - 65                                | 6.0 - 60 | 80                              | 1.4                                                       |

Special ranges are available.

## Dimensions and weights

|                        | G     | Types      | SW | X  | Weight<br>kg |
|------------------------|-------|------------|----|----|--------------|
| <b>Brass</b>           | G 1/4 | MR1K-008GM | 40 | 15 | 1.3          |
|                        | G 3/8 | MR1K-010GM |    |    |              |
|                        | G 1/2 | MR1K-015GM |    | 18 | 1.2          |
|                        | G 3/4 | MR1K-020GM |    |    | 1.1          |
|                        | G 1   | MR1K-025GM |    |    |              |
| <b>Stainless steel</b> | G 1/4 | MR1K-008GK | 41 | 15 | 1.2          |
|                        | G 3/8 | MR1K-010GK |    |    |              |
|                        | G 1/2 | MR1K-015GK |    | 18 | 1.1          |
|                        | G 3/4 | MR1K-020GK |    |    |              |
|                        | G 1   | MR1K-025GK |    |    |              |



## Additional weights for options

|                           |         |           |         |
|---------------------------|---------|-----------|---------|
| Additional switching head | 0.09 kg | Display O | 0.09 kg |
| Display O1                | 0.04 kg | Display J | 0.02 kg |

## Product Information

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### Handling and Operation

#### Note

- Include straight calming section of 5 x DN in inlet and outlet
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switch on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

#### Adjustment

If it is necessary to set the switching value, the switching head can be adjusted lengthways. When the switching value is reached, the switching unit is fixed in place by fastening bolts.



### Ordering code

MR1K 1. 2. 3. 4. 5. 6.

| 1. Display options                                              |                                                                                                                                                                                    |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -                                                               | no mechanical display                                                                                                                                                              |
| O1-                                                             | with measurement display at side O1                                                                                                                                                |
| O-                                                              | with measurement display at side O                                                                                                                                                 |
| J-                                                              | with frontal measurement display J                                                                                                                                                 |
| 2. Nominal width                                                |                                                                                                                                                                                    |
| 008                                                             | DN 8 - G $\frac{1}{4}$                                                                                                                                                             |
| 010                                                             | DN 10 - G $\frac{3}{8}$                                                                                                                                                            |
| 015                                                             | DN 15 - G $\frac{1}{2}$                                                                                                                                                            |
| 020                                                             | DN 20 - G $\frac{3}{4}$                                                                                                                                                            |
| 025                                                             | DN 25 - G 1                                                                                                                                                                        |
| 3. Process connection                                           |                                                                                                                                                                                    |
| G                                                               | female thread                                                                                                                                                                      |
| 4. Connection material                                          |                                                                                                                                                                                    |
| M                                                               | brass                                                                                                                                                                              |
| K                                                               | stainless steel                                                                                                                                                                    |
| 5. Switching range H <sub>2</sub> O for horizontal inwards flow |                                                                                                                                                                                    |
| 004                                                             | 0.4 - 4 l/min                                                                                                                                                                      |
| 010                                                             | 1.0 - 10 l/min                                                                                                                                                                     |
| 020                                                             | 2.0 - 20 l/min                                                                                                                                                                     |
| 030                                                             | 3.0 - 30 l/min                                                                                                                                                                     |
| 040                                                             | 4.0 - 40 l/min                                                                                                                                                                     |
| 060                                                             | 6.0 - 60 l/min                                                                                                                                                                     |
| 6. Special switching head                                       |                                                                                                                                                                                    |
| A                                                               | switching head ATEX A- H4.1 / A- H4.2<br>Please order the switching head for  -use in addition. |



MR1KO1



MR1KO



MR1KJ



### Options

- Signal lamp red or red / green in the plug DIN 43650-A
- Connection for round plug connector M12x1
- Cable 2.5 m with cable gland
- Reinforced piston
- Additional switching head
- High pressure model PN 500 (only if made of brass)
- Switch contact SPDT change over 250 V AC 0.35 A 30 VA - increased hysteresis depending on switching value. Only available with fixed switch point..
- Switch contact SPST N.O. 250 V DC 1.5 A 50 W / 265 V AC 1.1 A 50 VA
- Switching values for oil
- Special values
- Temperature display 0..120 °C

### Ordering information

- Specify direction of flow, medium, and switching range.
- For viscous media specify viscosity, temperature, and medium (e.g. ISO VG 68) (enquire about switching range).